

## Discriminant Function Based on Circulating Tumor Cells for Accurate Diagnosis of Metastatic Breast Cancer

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**Abstract :** Tumor metastasis involves the dissemination of malignant cells into the basement membrane and vascular system contributes to the circulating pool of these markers. In this context our aim has been focused on development of a non-invasive. Circulating tumor cells (CTCs) represent a unique liquid biopsy carrying comprehensive biological information of the primary tumor. Herein, we sought to develop a novel score based on the combination of the most significant CTCs biomarkers with and routine laboratory tests for accurate detection of metastatic breast cancer. Methods: Cytokeratin 18 (CK18), Cytokeratin 19 (CK19), and CA15.3 were assayed in metastatic breast cancer (MBC) patients (75), non-MBC patients (50) and healthy control (20). Results: Areas under receiving operating curve (AUCs) were calculated and used for construction on novel score. A novel score named MBC-CTCs =  $CA15.3 (U/L) \times 0.08 + CK18 \% \times 2.9 + CK19 \times 3.1 - 510$ . That function correctly classified 87% of metastatic breast cancer at cut-off value = 0.55. (i.e great than 0.55 indicates patients with metastatic breast cancer and less than 0.55 indicates patients with non-metastatic breast cancer). Conclusion: MBC-CTCs is a novel, non-invasive and simple can applied to discriminate patients with metastatic breast cancer.

**Keywords :** metastatic breast cancer, circulating tumor cells, cytokeratin, EpiCam

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